Cosmo-101, 2005
Problem Set 2

2. a) Calculate the energy density u today due to:
      i) kinetic energy in the random motions of galaxies and other forms of baryonic and dark matter (pick a characteristic velocity);
      ii) radiation.
   Compare these values with the critical energy density $\rho_{crit}c^2$, where $\rho_{crit} = 3H_0^2/8\pi G$.

   b) Calculate the redshift where $u_{rad} = \rho_{matter}c^2$.